



Contribution ID: 88

Type: not specified

## Feasibility studies for the open-charm production in proton-antiproton reactions for the PANDA experiment

The PANDA experiment is one of the pillars of the future Facility for Antiproton and Ion Research (FAIR) in Darmstadt, Germany. The PANDA physics program is focused on answering fundamental questions related to Quantum Chromodynamics (QCD), mostly in the non-perturbative energy regime. Spectroscopy exploiting D-mesons and  $\Lambda_c$ -baryons that are composed of a heavy charm valence quark and one or two light valence quarks is an integral part of the PANDA physics program. Such systems can systematically provide information on various key features of QCD, such as heavy-quark symmetry, chiral symmetry breaking, and the nature of exotic states. In this work, the experimental feasibility of studying the production mechanisms of associative open-charm hadrons in antiproton-proton annihilations is investigated using Monte Carlo simulations. We present results obtained for the channels  $\bar{p} + p \rightarrow D^0 \bar{D}^0$  and  $\bar{p} + p \rightarrow \Lambda^+ c \Lambda^- \bar{c}$ , highlighting the detector performances (efficiencies and resolutions) and the statistical significance that can be achieved with the foreseen luminosities.

**Primary author:** Mr APOSTOLOU, Alexandros (Phd Student KVI-CART)

**Co-author:** Mrs VEJDANI, Solmaz (Phd Student KVI-CART)

**Presenter:** Mr APOSTOLOU, Alexandros (Phd Student KVI-CART)